

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

METHOD OF TEST FOR COHESIOMETER VALUE OF UNTREATED
AGGREGATE BASE OR SUBBASE COURSE

- 1.0 PURPOSE
- 1.1 To determine the cohesiometer value of untreated aggregate base or subbase course.
- 2.0 SCOPE
- 2.1 The cohesiometer test provides a measure of the cohesive resistance or tensile strength of a compacted untreated aggregate mixture.
- 3.0 INSTRUCTION
- 3.1 Preparation of Sample
 - 3.1.1 On laboratory compacted samples, use the specimen which has been subjected to the stabilometer test.
- 3.2 Cohesiometer Calibration
 - 3.2.1 Cohesiometer apparatus when empty should just balance with bucket attached, plates and thumb nut in place.
 - 3.2.2 Calibrate the cohesiometer so as to allow 1800 ± 20 grams of shot per minute to flow into the receiving bucket.
- 3.3 Tests and Calculations
 - 3.3.1 Perform the test by clamping the test specimen firmly in the testing machine, making certain that the specimen is centered with the top plates parallel with the surface of the specimen. Use a straight edge for this purpose. Tighten clamp nuts until snug using the fingers only.

3.3.2 Release flow of shot into receiver, and allow flow of shot to continue until specimen breaks. In the event the specimen is flexible, rather than brittle, stop the flow of shot when the end of the 75 mm beam is deflected 13 mm from the horizontal.

3.3.3 Weigh the shot and record the weight to the nearest gram on Form SL-68 (See Page 3).

3.3.4 Calculate cohesiometer value from the following formula:

$$C = \frac{L}{W (0.000310H + 0.0000269H^2)}$$

Where:

C = Cohesiometer Value (Grams per inch width corrected to a 76 mm height)

W = Diameter or width of specimen in mm

L = Weight of shot in grams

H = Height of specimen in mm

3.3.5 Example:

Assume that it takes 60 grams of shot to break a certain specimen which has a 101.6 mm diameter and 63.5 mm height.

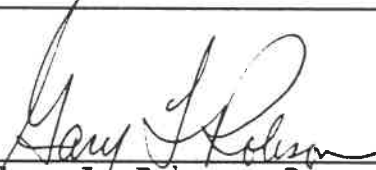
Cohesiometer Values =

$$\begin{aligned} C &= \frac{60}{4[(0.2)(2.5) + (0.044)(63.5 \text{ mm})]} \\ &= \frac{60}{3.1} = 19.4 \end{aligned}$$

3.4 Evaluation of Cohesiometer Value

3.4.1 Repeat the procedures, Sections 3.3.1 through 3.3.5 by making a second break at 90 degrees to the first of the same specimen.

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- 3.4.2 The mean cohesiometer value will be the average of the two (2) breaks.
- 3.5 Reporting the Results
- 3.5.1 Plot the cohesiometer value of the three (3) specimens against their respective exudation pressures (previously determined by the stabilometer R Value Test). Draw a smooth curve through the plotted points. The cohesiometer values where this curve crosses the 200 psi and 240 psi exudation pressure are the cohesiometer value at 2,068 kPa exudation and the cohesiometer value at 1,655 kPa exudation pressure respectively.
- 3.6 Equipment
- 3.6.1 Cohesiometer
- 3.6.2 Balance 10,000 grams, capacity, 1.0 gram accuracy.
- 3.7 Remarks
- 3.7.1 Before loading sample, the locking device of cohesiometer must be set.
- 3.7.2 Before performing test, the lock device must be unlocked.
- 3.7.3 Testing platform and plate of cohesiometer must be clean before conducting tests.
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